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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,467	08/19/2003	Ajoy K. Ray	ITL.0997US (P14029)	4096
21906	7590	09/15/2006	EXAMINER	
TROP PRUNER & HU, PC 1616 S. VOSS ROAD, SUITE 750 HOUSTON, TX 77057-2631			HIRL, JOSEPH P	
		ART UNIT		PAPER NUMBER
				2129

DATE MAILED: 09/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/643,467	RAY ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Joseph P. Hirl	2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 05 July 2006.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-11,13-16 and 18-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-11,13-16 and 18-23 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 19 August 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    - a) All    b) Some \* c) None of:
      1. Certified copies of the priority documents have been received.
      2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
      3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____.                                     |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.   | 6) <input type="checkbox"/> Other: _____.                         |

## **DETAILED ACTION**

1. This Office Action is in response to an AMENDMENT entered July 5, 2006 for the patent application 10/643,467 filed on August 19, 2003.
2. The First Office Action of April 3, 2006 is fully incorporated into this Final Office Action by reference.

### ***Status of Claims***

3. Claims 1-11, 13-16 and 18-23 are pending.

### ***Double Patenting***

4. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

.5      Claims 1-23 provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-23 of copending Application No. 10/643,672 This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

#### ***Specification Objection***

6.      The specification does not contain a summary of the invention as required by MPEP 608.01(a). This objection must be corrected.

#### ***Claim Rejections - 35 USC § 112***

7.      Claims 9-11, 13-16 and 18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Examiner failed to find in the specification limitations related to partitioning related to fuzzy logic. It is noted that such

limitation was not characterized by the applicant as not being new matter. As such, the limitation based on fuzzy logic related to the subject claims was not evaluated.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 7, 8, 9, 13, 15, 19, 21, 22 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "similar," and "similarity" are relative and consequently render the subject claims indefinite.

### ***Claim Rejections - 35 USC § 101***

10. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-23 are rejected under 35 U.S.C. § 101 for nonstatutory subject

matter. The computer system must set forth a practical application of § 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77. The invention is ineligible because it has not been limited to a substantial practical application. Partitioning a database corresponding to object images based on fuzzy similarities subject to a first threshold is useless in a real world situation.

In determining whether the claim is for a "practical application," the focus is not on whether the steps taken to achieve a particular result are useful, tangible, and

concrete, but rather that the final result achieved by the claimed invention is useful, tangible and concrete. If the claim is directed to a practical application of the § 101 judicial exceptions producing a result tied to the physical world that does not preempt the judicial exception, then the claim meets the statutory requirement of 35 U.S. C. § 101.

The phrases “partitioning a database,” “measure of the object images having fuzzy similarity,” “determining a feature set,” “using fuzzy logic to search the database,” “forming a similarity matrix,” are not clear in its purpose or scope.

The invention must be for a practical application and either:

- 1). specify transforming (physical thing – article) or
- 2). have the Final Result (not the steps) achieve or produce a useful (specific, substantial and credible), concrete (substantially repeatable / non unpredictable), and tangible (real world / non abstract) result  
(tangibility is the opposite of abstractness).

A claim that is so broad that it reads on both statutory and non-statutory subject matter, must be amended, and if the specification discloses a practical application but the claim is broader than the disclosure such that it does not require the practical application, then the claim must be amended. Claims that output a general limitation (“a portion of a solution set”) are attempting to patent every “substantial practical application” of an idea because such a patent in practical effect is a patent on the idea itself. *Gottschalk v. Benson*, 409 U.S. 63, 71-72, 175 USPQ 673, 676 (1972).

Claims that are predicated on "if executed" leaving a general limitation if such claims are not executed creating a preemption condition and such claims are not statutory.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Jain et al (USPN 6,121,969, referred to as **Jain**).

**Claim 1**

Jain anticipates partitioning a database corresponding to object images into a first partition and a second partition based on a fuzzy similarity analysis of a measure of the object images to a first threshold (**Jain**, Abstract, c 7:54-67; c 20:8-65; Examiner's Note (EN): ¶ 17 applies; ordering of a database and partitioning of a database are not functionally distinctive; c20, eqn 12 has a minimum threshold).

**Claim 2**

Jain anticipates partitioning each of the first partition and the second partition into at least two portions so that the measure of the object images having a fuzzy similarity

more than or equal to a second threshold cluster into a selected one of the at least two portions (**Jain**, Abstract, c 7:54-67; c 20:8-65; EN: c 20, eqn 10 has two thresholds).

**Claim 3**

Jain anticipates deriving a feature set for each of the object images from contours of at least two views of objects corresponding to each of the object images (**Jain**, c 20, eqn 7).

**Claim 4**

Jain anticipates comprising determining a feature set from image content of a query object image (**Jain**, c 20, eqn 8; c 23:56-64).

**Claims 5, 21**

Jain anticipates using fuzzy logic to search the database for at least one image similar to the query object image (**Jain**, c 20, eqn 8; c 23:56-64).

**Claim 6**

Jain anticipates using the fuzzy logic comprises comparing one object image from each of said first and second partitions with said query object image (**Jain**, c 20, eqn 10).

**Claims 7, 22**

Jain anticipates based on the comparison, obtaining the at least one similar image as a match in the partition that indicates maximum similarity with said query object image (**Jain**, c 20, eqn 12).

**Claim 8**

Jain anticipates forming a similarity matrix for the object images within the database before partitioning the database (**Jain**, c 7:54-67; EN: ordering of a database re color, color distribution, etc. is not functionally distinct from forming a similarity matrix for object images; timing of the partitioning of the database is also not functionally distinct from a partitioned database ).

### **Claims 9, 15**

Jain anticipates partitioning a database corresponding to object images into a plurality of sets based on fuzzy logic (**Jain**, c5:67 – c6:1); obtaining a query image (**Jain**, c 23:56-64); searching the database for a solution set having a maximum similarity to the query image using the fuzzy logic (**Jain**, c 20:8-65; c 23:56-64); and outputting a portion of the solution set (**Jain**, 24:47-56). Jain also anticipates machine-readable storage medium containing instructions that if executed enable a system ... (**Jain**, Abstract; c 1:10-16; EN: ¶ 13. applies).

### **Claims 10, 16**

Jain anticipates searching the database comprises comparing a single image of each of the plurality of sets within the database to the query image (**Jain**, c 23:56-64).

### **Claims 11, 18**

Jain anticipates comparing the single image comprises comparing a feature vector of the query image to a corresponding feature vector of the single image (**Jain**, c 20, eqn 8; c 23:56-64).

**Claims 12, 17**

Jain anticipates partitioning the database into a plurality of sets based on fuzzy logic theory (**Jain**, c 7:54-67; c 8:1-3; c 20:8-15).

**Claim 13**

Jain anticipates partitioning the database into a plurality of levels, each of the levels corresponding to a similarity threshold (**Jain**, c 7:54-67; c 8:1-3).

**Claim 14**

Jain anticipates outputting a portion of the solution set comprises displaying at least one object image corresponding to the portion of the solution set (**Jain**, c 10:35-41).

**Claim 19**

Jain anticipates a dynamic random access memory containing instructions that if executed enable the system to partition a database corresponding to object images into a first partition and a second partition based on a fuzzy similarity analysis of a measure of the object images to a first threshold (**Jain**, Abstract, c 7:54-67; c 20:8-65; EN: ¶ 13 applies; ordering of a database and partitioning of a database are not functionally distinctive; c 20, eqn 12 has a minimum threshold); and a processor coupled to the dynamic random access memory to execute the instructions (**Jain**, c 1:6-9).

**Claim 20**

Jain anticipates if executed enable the system to derive a feature set for each of the object images from contours of at least two views of objects corresponding to each

of the object images (**Jain**, c 19:59-67; c 20:1-65; EN: a predicate is equivalent to a view; contour is the vector).

**Claim 23**

**Jain** anticipates a display coupled to the processor to display the query object image and the at least one similar image (**Jain**, c 1:6-17).

***Response to Arguments***

13. Applicant's arguments filed on July 5, 2005 related to Claims 1-11, 13-16 and 18-23 have been fully considered but are not persuasive.

In reference to Applicant's argument:

Pending claims 1-23 stand rejected under 35 U.S.C. § 101 for double patenting in view of U.S. Patent Application No. 10/643,672 ('672 Application). However, the pending claims are distinct from those in the '672 Application. Attached hereto as Exhibit A is a copy of the claims, as filed, for the '672 Application. (Exhibit A was retrieved using the United States Patent and Trademark Office's Patent Application Information Retrieval.) The claims in Exhibit A are not the same as pending claims 1-23. Applicant respectfully notes that the differences in the originally filed claims and the published claims of the '672 Application are likely the result of a publishing error.

Examiner's response:

If there is indeed an error in the published claims of USPubN 2005/0041863 (10/643,672), then the proper action by the applicant should be to immediately request action by the USPTO to rectify such error. Currently, what is published must be accepted as that ... the claims of the applicant. However, with the amendments to the claims by the applicant regarding the instant application, the Examiner will adjust the rejections as follows: Double Patenting Statutory – claims 1-8, 10, 11, 13, 16, 18-23; Double Patenting Obvious – claims 9, 14, 15.

In reference to Applicant's argument:

The specification is objected to because it lacks a "Summary of the Invention." However, such a section is not required by statute or rule. See, e.g., 37 C.F.R. § 1.73, which states that such summary "should precede the detailed description." Thus, such a summary is not required. This rule further contemplates the optional nature of the summary: "[s]uch summary, when set forth..." Id. (emphasis added). Thus, Applicants respectfully decline to include such a summary.

Examiner's response:

Applicant is invited to reference 37 CFR §1.71 which requires a full, clear, concise, and exact disclosure. Under such rules, it would be improper to allow some applicants not to fully engage the spirit and full intent to the statutes of the United States Government to include the rules of USPTO. A Summary is required.

In reference to Applicant's argument:

Pending claims 7-9, 13, 15, 19, and 21-23 stand rejected under 35 U.S.C. § 112 because they include the terms "similar" and "similarity", which are indefinite. Definiteness of claim language must be analyzed, not in a vacuum, but in light of "[t]he content of the particular application disclosure" and "teachings of the prior art." MPEP 2173.02. Regarding the content of the specification, the terms "similar" and "similarity" are addressed at length at, for example only, pages 13 and 14. Regarding the "teachings of the prior art", Applicant respectfully notes that "similar" and "similarity" are used throughout the Jain reference (e.g., claim 3)-a reference the Examiner asserts constitutes prior art.

Examiner's response:

Applicant's specification @ page 14, line 12 equates/defines "similarity" as "tolerance." From claims 7, 9, 15, and 22, the limitation is for "maximum similarity" ... maximum tolerance conveys a totally different limitation. From claim 8, "similarity matrix" is cited as a limitation. Using the specification reference, does this limitation mean that the matrix , taken as a whole is similar? Or does it mean that the elements of the matrix contain tolerance values ... which may or may not be similar to whatever. From claim 13, the term "similarity threshold" is used. Is this a "tolerance threshold" or is it to be interpreted to be a threshold related to some other level? Claim 19 limits to a

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"fuzzy similarity analysis." Again is this a tolerance analysis? Of, analysis of the membership function? From claims 21 and 23, the concept of a similar image is cited as a limitation. Using the equivalency of the specification cited above, is the limitation concerned with the tolerance of the graphic or the character of the graphic as it related to something else? As noted in the reference to 37 CFR §1.71, such use of "similarity" is not consistent with the requirements for full, clear, concise, and exact disclosure. The reference to other documents whether they be patents or something else is inconsequential to the instant requirements of the USPTO for this application.

In reference to Applicant's argument:

Pending claims 1-23 stand rejected under 35 U.S.C. § 101 as nonstatutory subject matter. A claim constitutes statutory subject matter if it is directed towards one of the enumerated subject matter categories process, machine, manufacture or composition of matter. Claim 19 recites: "memory" and a "processor." Thus, claim 19 is directed towards an enumerated subject matter category (i.e., not a judicial exception such as a law of nature, natural phenomena or abstract idea). Furthermore, a claim constitutes statutory subject matter if the claimed invention "transforms" an article or object. Original claim 1 and amended claims 9 and 15 all teach "partitioning a database." In other words, they teach the transformation of a database and therefore constitute statutory subject matter. In addition, a claim constitutes statutory subject matter if the claimed invention produces a useful, concrete and tangible result. Again, claims 1, 9, and 15 recite "partitioning a database." This claim element is specifically recited in the claims and constitutes a useful, concrete and tangible result. The resultant partitioned database, as appreciated by those of ordinary skill in the art, improves, for example, computational efficiency in the fuzzy logic field, and this is, in itself, a substantial final result. Further still, claims 9 and 15 have been amended to recite "outputting a portion of the solution set"-a useful, concrete and tangible result.

Examiner's response:

Applicant is invited to review the Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility published on November 22, 2005 in the Official Gazette. Among various applicable sections, specifically Appendix IV(a), the following is appropriate: Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not

capable of causing functional change in the computer. See e.g. Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 ( claim to a data structure per se held nonstatutory). A database is a data structure. Claim 19 is limited by "if executed" which means that the limitations do not function when there is no execution. Further, claims 19, 20 and 21 fail to provide a result that is a practical application. Specifically, this means that the computer operation is considered to be abstract since it merely produces numbers, keeps them internal to the computer and does not output anything.

In reference to Applicant's argument:

Claims 1, 19 and their dependent claims stand rejected under 35 U.S.C. § 102 in view of U.S. Patent No. 6,121,969 ("Jain"). To anticipate a claim, a reference must disclose every element of the claim. Jain does not anticipate claims 1 or 19 because it does not disclose every element of the claims. Claim 1 recites, in part, the following: "partitioning a database ...based on ...similarity analysis of a measure of the object images to a first threshold." Claim 19 recites: "memory containing instructions... to partition a database ...based on ...similarity analysis of a measure of the object images to a first threshold." Thus, claims 1 and 19 recite partitioning a database. Jain, however, does not. Instead, Jain teaches: "[T]he steps of (i) manually selecting with the new criterion... (ii) machine searching and ordering, [and] (iii) machine displaying..." (11:50-57). During the searching and ordering step, the following occurs: "[a] similarity measure labels each image in the database with the distance from the referent" image. (23:6061). Thus, Jain discloses labeling "each image in the database." Considering "each image" is labeled, the database has evidently not been "partitioned" as recited in claim 1. Furthermore, the Jain database is not partitioned based on a "first threshold."

Claims 9, 15 and their dependent claims stand rejected under 35 U.S.C. § 102 in view of Jain. Claim 9 has been amended to recite: "partitioning a database corresponding to object images into a plurality of sets based on fuzzy logic." Claim 15 has been amended to recite instruction to: "partition a database corresponding to object images into a plurality of sets based on fuzzy logic."

Examiner's response:

¶ 17 applies. To a person having ordinary skill in the art (PHOSITA), partitioning a database is axiomatic to a database of images. Specifically, Jain et al references partitioning of databases at c5:67. Jain at c5:67 to c6:1 partitions a database of case records into a tree of conceptually meaningful clusters. Such is synonymous with partitioning based on "first threshold" since a first cluster is based on a first

consideration or threshold. The consideration or partition limitation related to fuzzy logic is not evaluated since such limitation is not enabled in the disclosure. Such limitation is considered new matter by the Examiner. It is noted that such limitation was not characterized by the applicant as not being new matter.

### ***Examination Considerations***

14. The claims and only the claims form the metes and bounds of the invention. "Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)" (MPEP p 2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

15. Examiner's Notes are provided with the cited references to prior art to assist the applicant to better understand the nature of the prior art, application of such prior art and, as appropriate, to further indicate other prior art that maybe applied in other office actions. Such comments are entirely consistent with the intent and spirit of compact prosecution. However, and unless otherwise stated, the Examiner's Notes are not prior

art but a link to prior art that one of ordinary skill in the art would find inherently appropriate.

16. Unless otherwise annotated, Examiner's statements are to be interpreted in reference to that of one of ordinary skill in the art. Statements made in reference to the condition of the disclosure constitute, on the face of it, the basis and such would be obvious to one of ordinary skill in the art, establishing thereby an inherent *prima facie* statement.

17. Examiner's Opinion: ¶¶ 13. – 15. apply. The Examiner has full latitude to interpret each claim in the broadest reasonable sense.

### ***Conclusion***

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

19. Claims 1-11, 13-16 and 18-23 are rejected.

***Correspondence Information***

20. Any inquiry concerning this information or related to the subject disclosure should be directed to the Primary Examiner, Joseph P. Hirl, whose telephone number is (571) 272-3685. The Examiner can be reached on Monday – Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, David R. Vincent can be reached at (571) 272-3080.

Any response to this office action should be mailed to:

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 P. E.  
Joseph P. Hirl

Primary Examiner  
September 13, 2006